Advant® OCS

SQL*Net® TCP/IP
AdvaSoft™ for Windows

User’s Guide

Use of **DANGER**, **WARNING**, **CAUTION**, and **NOTE**

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CAUTION	Hazards which could result in equipment or property damage
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Chapter 1 Introduction

1.1 General Information

This guide provides you with information about the SQL*Net TCP/IP communication option (SQL*Net TCP/IP) for the AdvaSoft for Windows program suite. As with the rest of the AdvaSoft options, it is intended for a Microsoft Windows environment.

Users of the SQL*Net TCP/IP option have access to Oracle7™ databases, e.g., those located in Advant Station 500 series or in external computers, using a TCP/IP network. The SQL*Net TCP/IP option makes it possible for any application supporting ODBC, for example, AdvaCommand and standard MS applications, to exchange data with the distributed databases in the Advant Controllers.

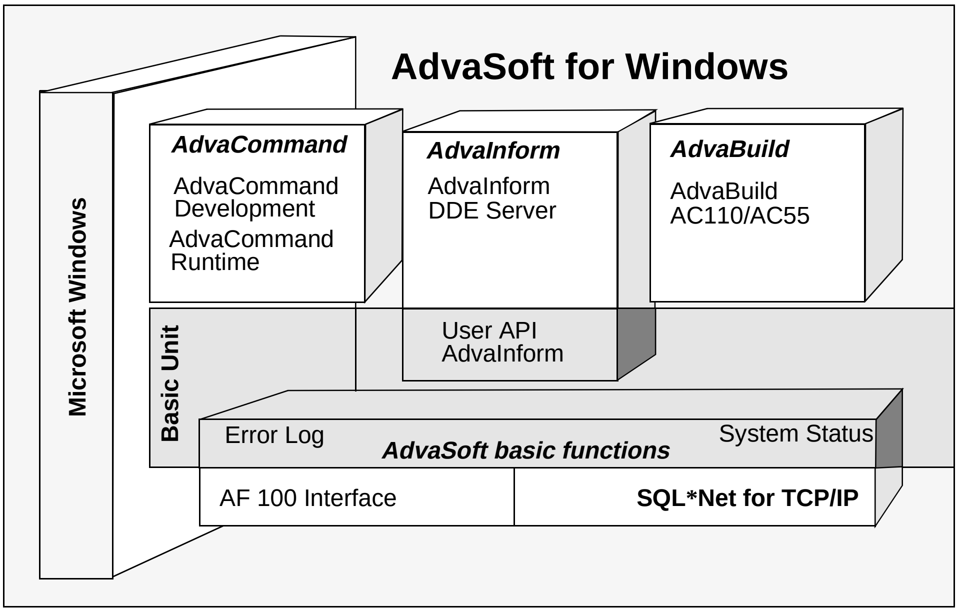


*Figure 1-1. AdvaSoft for Windows and the SQL*Net TCP/IP option's participation in the program suite*

Topics covered in this guide include installation, configuration and run-time operation of the software. This guide is intended for users involved in these tasks.

Figure 1-1 shows an example of a configuration using the SQL*Net TCP/IP communication software.

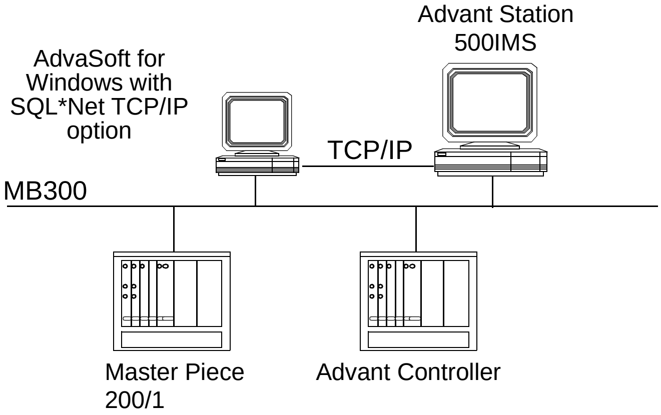


*Figure 1-2. SQL*Net TCP/IP in a network configuration*

Each chapter in this guide covers a different topic and each is directed towards particular users.

This chapter, Chapter 1, gives you an overview of SQL*Net TCP/IP—the purposes for which it is used, the features it provides and related information which is useful when you are handling the SQL*Net TCP/IP software. Chapters 2 and 5 cover topics of interest to system administrators. Chapters 3 and 4 are directed to people involved in the configuration and operation, respectively, of the SQL*Net TCP/IP software.

To fully comprehend the information in this guide, you’ll require basic knowledge about AdvaSoft for Windows and Windows. In addition, a basic understanding about network handling, network communication and databases is also valuable. For run-time operation of the SQL*Net TCP/IP software, no previous knowledge is required.

To learn about your AdvaSoft for Windows system, it is recommended that you participate in the training courses provided by ABB Industrial Systems AB’s training centers.

1.2 Equipment Requirements

1.2.1 Hardware

The SQL*Net TCP/IP software can be installed on any AdvaSoft for Windows station provided that the station is equipped with a network interface card that adheres to the IEEE 802.3 standard and MS Windows. The network interface card must support your TCP/IP software.

Table 1-1. Minimum recommended hardware for Advasoft for Windows

Component	AdvaSoft for Windows
Personal computer (PC)	486DX2/66 MHz
Primary memory (RAM)	16 MB
Hard disk drive (with available space of memory)	70 MB
No of 1.44 MB 3.5" diskette drive	1
No of spare standard PC AT slot (1)	1

(1) One spare standard PC AT slot for each of the following hardware options where applicable:
– IEEE 802.3 interface board for TCP/IP.

Table 1-2. Disk space requirements for AdvaSoft for Windows product

Component	Disk Space
SQL*Net TCP/IP (Client)	10 MB

1.2.2 Software

Basic equipment requirements for the SQL*Net TCP/IP option are as follows:

- Operating System requirements
  - Microsoft Windows 3.1 or later
  - Microsoft MS-DOS 5.0 or later
- Server node requirements
  - Oracle SQL*Net Version 2
  - Oracle7 database
- Communication software requirements
  - It is recommended that you use Microsoft TCP/IP version 3.11 or later
- Application software requirements
  - AdvaSoft for Windows Basic Functions

  …and one or more of following:

  - AdvaCommand for Windows
  - MS Excel or other third-party software supporting ODBC

Additional hardware requirements, depending on the application software, are explained in the Equipment requirements section of the *AdvaSoft for Windows User’s Guide*.

1.3 Manual Organization

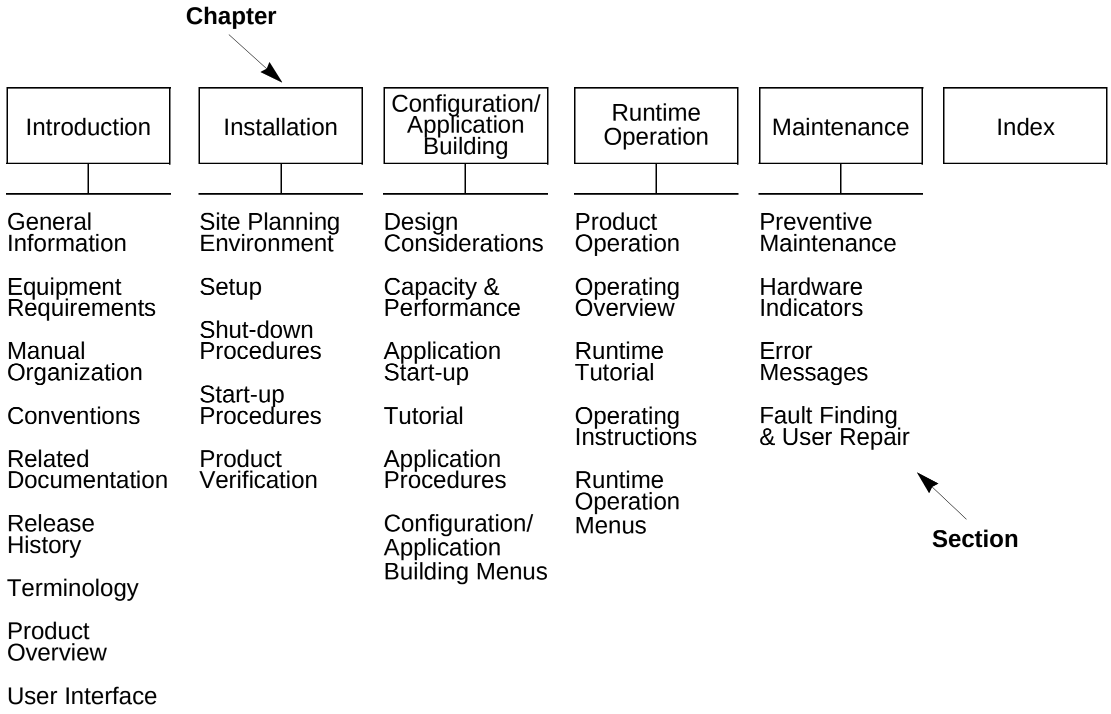


Figure 1-3. Structure of this guide

All books describing a component part—hardware as well as software—in the Advant OCS concept use the same structure, described in Figure 1-3 above. A reader familiar with any of the books in the Advant OCS documentation can easily find information in this book.

The chapters are described below.

Chapter 1 Introduction

Overview and short summary of the Oracle SQL*Net version 2.1 product and related general information. The intended audience is readers interested in SQL*Net. This chapter also provides a system overview and system requirements.

Chapter 2 Installation

The information provided in this chapter is primarily of interest to the system manager. It covers preparations before installation and installation procedures. It also gives some additional information about upgrading, the directory structure used and system management during installation.

Chapter 3 Configuration/Application Building

After installation, the SQL*Net software must be configured if it is to run properly. In this chapter, the configuration procedure is described in detail.

Chapter 4 Runtime Operation

This chapter describes operation during start-up, run-time and shutdown. It also describes some features included in the support software, installed together with SQL*Net TCP/IP, which are useful when monitoring network status.

Chapter 5 Maintenance

This chapter is meant for the system manager. It deals with preventive maintenance, actions taken when software/hardware errors occur and error reporting.

1.4 Conventions

Note these typographical conventions when reading this User's Guide:

Example	Type of information
[ ]	In a programming example, brackets enclose optional items or indicate a function key. Do not enter the brackets.
{}	In a programming example, curly brackets enclose multiple items from which you must select one.
|	In a programming example, a vertical bar represents an "or" option between several options. You must enter only one of the options. Do not enter the vertical bar.
Punctuation	In a programming example, punctuation other than brackets and vertical bars must be entered in commands exactly as shown.
UPPERCASE	Uppercase characters within the text represent command names, file names, SQL-reserved words, and keywords.
lowercase	Lowercase characters within command lines represent parameters that must be typed exactly as shown, for example column, table, and other example object names.
.. *refer to the AdvaSoft for Windows User's Guide..*	References to other books are written in italics.
.. the *first* time..	Italics are also used emphasize a word or a sentence.
..Oracle Installer..	Names on windows, dialog boxes or fields in dialog boxes are written in the same style as they appear on the display.

Example	Type of information
.. Press the Return Key..	The names of keyboard keys are written in the Times font (also used for text in general), plain style, as they appear on the keyboard (initial-capped, for example).
.. Press the space bar...	Lowercase letters are used for keyboard keys that are not labelled on the keyboard.
.. press <Return>...	In tables and procedures, angle brackets replace the word “key”.
.. <Ctrl-C>..	A dash is used to indicate that more than one key must be pressed simultaneously, in this case, the keys <Ctrl> and <C>.
.. press the OK button..	Push and toggle buttons are written just as they appear on the display. Also, in descriptions, tables and procedures, the word “button” is used in conjunction with its name.
.. the File menu..	The names listed in the menu bar are initial-capped.
..select New from the File menu...	Names of menu items are initial-capped.
.. select File - new..	Short for select New from the File menu (see above).
...enter **MYIMS** in the...	In a tutorial, for example, you may be told to enter a value or text into a dialog box field. That value, or text, is then written in boldface.
\DIRECTORY	A backslash before a directory name signals that the directory is a subdirectory.

Other conventions:
In procedures and tutorials, for example, screen output is written in Courier font.

```
Entered value is not valid...
```

User input is written in boldface:

```
Enter the IMS user name:
```

`MYIMS`

1.5 Related Documentation

An overview of various required, optional and related documentation available from ABB, depending on your system configuration, and a short description of each guide follows

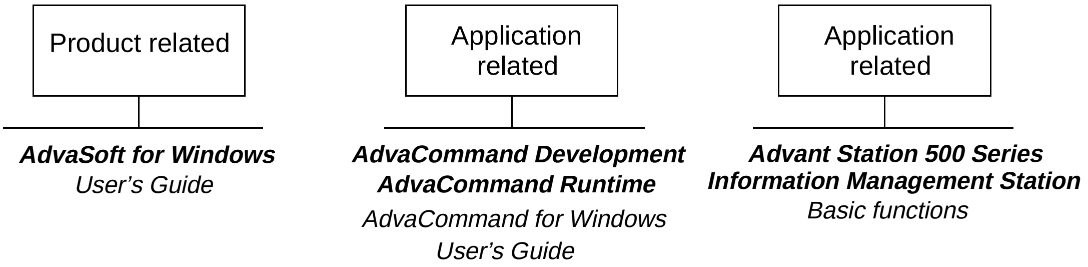


Figure 1-4. Related Documentation Tree

AdvaSoft for Windows User's Guide tells you how to use AdvaSoft and is applicable from the time of installation.

AdvaCommand Development, AdvaCommand Runtime and AdvaCommand for Windows User's Guide provides instructions on how to use AdvaCommand development and AdvaCommand runtime. It is applicable from the time of installation.

Advant Station 500 Series Information Management Station Basic functions provides you with instructions for system administration functions.

1.6 Release History

*Table 1-3. SQL*Net TCP/IP for Windows Product release History*

Unit	Version/ Revision	Description
SQL*Net TCP/IP for Windows	1.0	Initial version used for AdvaSoft
SQL*Net TCP/IP for Windows	2.0	Oracle SQL*Net version 2.1 and Intersolv Oracle7 ODBC driver implemented

1.7 Terminology

1.7.1 Used Abbreviations

AS	Advant Station. This is the common name for the Advant Station Series of operator engineering and information management stations within Advant OCS, for example, AS 100 IMS.
DCS	Distributed Control System, a process station with a distributed database, for example AC 410. This is a common term for such systems.
DDE	Dynamic Data Exchange, a form of interprocess communication that uses shared memory to exchange data between applications in the MS-Windows environment.
FTP	File Transfer Protocol. FTP provides file transfer functionality on a TCP/IP network.
IMS	Information Management Station.
MMI	Man Machine Interface. This is a common term for operator interactive functionality.
MP	MasterPiece. This is a series of process stations in the Advant OCS.
NDIS	Network Driver Interface Specification. This is an option for the IEEE 802.3 interface.
OCS	Open Control System.
ODBC	Open Database Connectivity, an interface providing vendor neutral access to various database systems.
OS	Operator Station. A station with operator interactive functionality.
TCP/IP	Transmission Control Protocol/Internet Protocol. This is a standard communication protocol.
TNS	Transparent Network Substrate. An Oracle network technology that creates a single application interface to all industry-standard networking protocols.

1.7.2 Used Terms

Advant OCS	Advant OCS refers to one or more of the distributed control systems from ABB Industrial Systems AB, for example, ABB Master and ABB Mod 300.
Client application	An application that subscribes to objects from the automation system. For example, an application that subscribes to objects via the DDE Server is a DDE client.
Node	A network unit with its own address, communicating on a network. A node can be an AdvaSoft for Windows, a gateway or an Advant Controller. Sometimes also referred to as a station.
Node number	Each node in the network is given its own unique number.
Oracle Protocol Adapter	A software that translates TNS function calls into calls of the underlying network protocol.
Oracle SQL*Net version 2.1	Oracle client/server communication layer that offers transparent operation over any type of network protocol and operating system to applications.
SQL*Net driver	A TNS-based application that enables client workstations to access Oracle7 servers.
SQL*Net TCP/IP	When Oracle SQL*Net Version 1, 2, 2.1 or SQL*Net is mentioned in this manual, it is referring to the actual Oracle products. When the term SQL*Net TCP/IP is used, it refers to the AdvaSoft for Windows communication option that uses the various Oracle SQL*Net products.
TNS-based application	An application that uses the common functions of the TNS interface to transmit data across one or more networks. SQL*Net is a TNS-based application.
User Interface	The dialog between the user and a computer program, as in MS Windows user interface, with program groups, icons, menus and menu items.

1.8 Product Overview

General

SQL*Net Version 2.1 is an Oracle TNS-based application that enables client applications to access, modify, share and store data on Oracle7 database servers. The communication between client applications and servers takes place across a network, and is referred to as client/server communication.

SQL*Net provides transparent distributed data access across a network to client applications.

The ODBC interface gives a vendor independent interface to the relational database, allowing various applications access to the database.

Figure 1-5 describes the interconnections among the different programs.

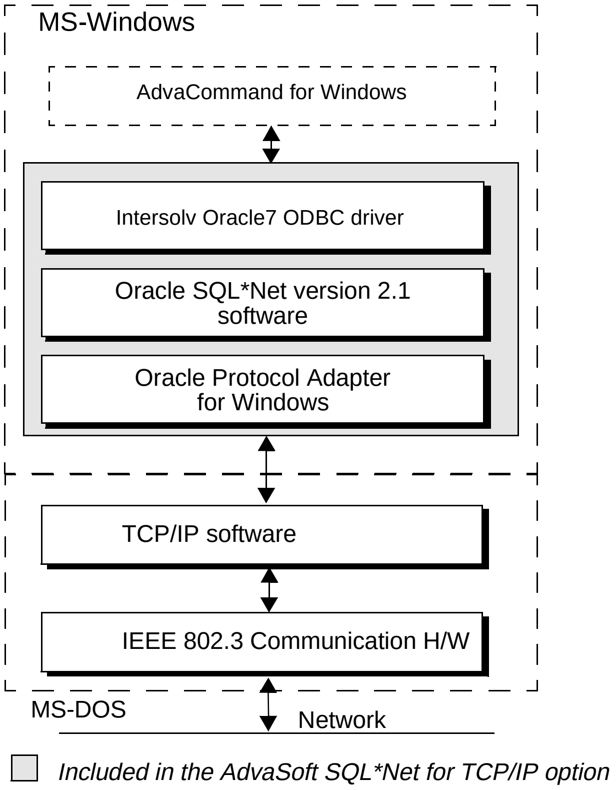

MS-Windows
AdvaCommand for Windows
Intersolv Oracle7 ODBC driver
Oracle SQL*Net version 2.1 software
Oracle Protocol Adapter for Windows
TCP/IP software
IEEE 802.3 Communication H/W
MS-DOS
Network
▨ Included in the AdvaSoft SQL*Net for TCP/IP option

*Figure 1-5. AdvaSoft for Windows when using the SQL*Net TCP/IP option.*

1.8.1 Client/Server Concept

In AdvaSoft for Windows, using SQL*Net, client/server is a method for separating a database application in two parts: the client portion and the server portion. The client portion can be an AdvaSoft for Windows station used for displaying process data and the server portion can be an Advant Station 500 series IMS station with a SQL-compliant database.

In a client/server session, the SQL*Net TCP/IP and Oracle Protocol Adapter on the Windows' client side take the SQL requests from the application and package them for transmission.

Once the network package is received by the server machine, the Oracle Protocol Adapter and SQL*Net TCP/IP on the server side assemble the SQL statements from the network package, then pass them to the Oracle7 database.

When the Oracle7 database Server replies, the data is sent back to the client machine via the same mechanism. This procedure is the same for all network operating systems.

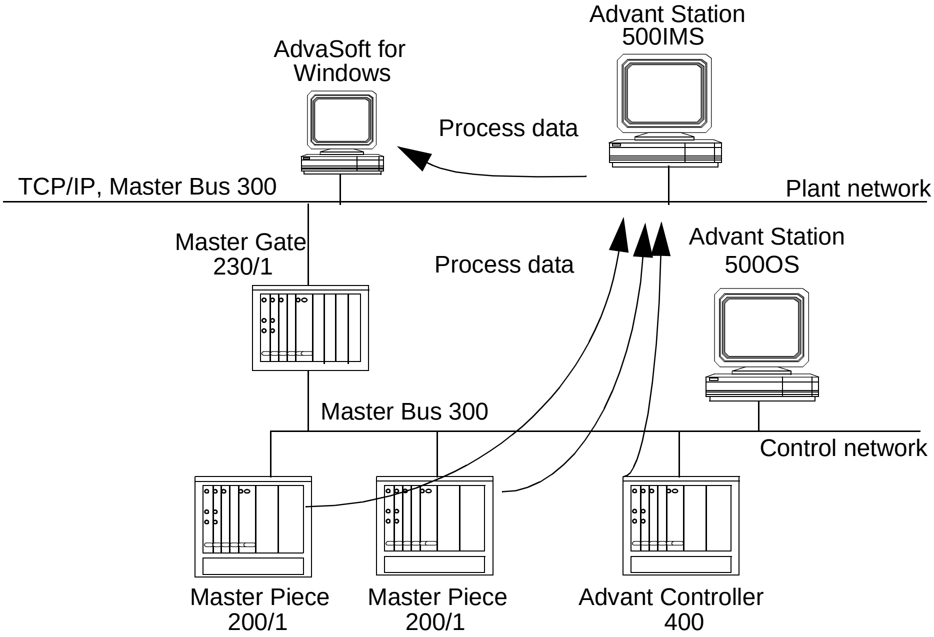


Figure 1-6. Data flow in a typical system setup.

The process data, presented on the AdvaSoft station, is collected from the IMS station. Data from the controllers can also be accessed directly via the IMS station.

TNS - Transparent Network Substrate

Transparent Network Substrate (TNS) is the name of Oracle's networking architecture. The TNS architecture provides a uniform application interface to enable TNS-based applications to access underlying network protocols. By using the common functions of TNS, network applications can access many different underlying network protocols in a standard way.

The architecture of TNS is comprised of three software components: TNS-based applications, Oracle Protocol Adapters, and third-party networking software. SQL*Net version 2.1 is an Oracle TNS application.

These components are shown in Figure 1-7 below.

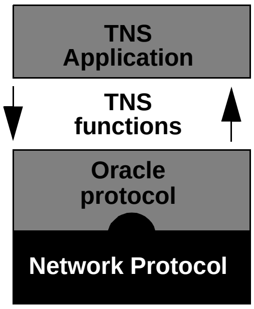


Figure 1-7. The TNS Architecture

Oracle Protocol Adapter

Oracle Protocol Adapter software translates the functions of the underlying network software into equivalent functions of TNS. Protocol Adapter also translate TNS functions into functions understood by the underlying network software.

The OSI model

Because of the diversity of network architectures, the International Standards Organization (ISO) has established a model that describes the transmission of data across networks. The Open Systems Interconnect (OSI) model is a seven-layer structure that outlines the communications of data from hardware (the physical layer) to the user interface (application layer). Each OSI layer provides a service for the layer immediately above.

All Oracle SQL*Net products can be described in terms of the OSI Model. Figure 1-8 illustrates how the SQL*Net software provides an interface between application programs and the port specific driver.

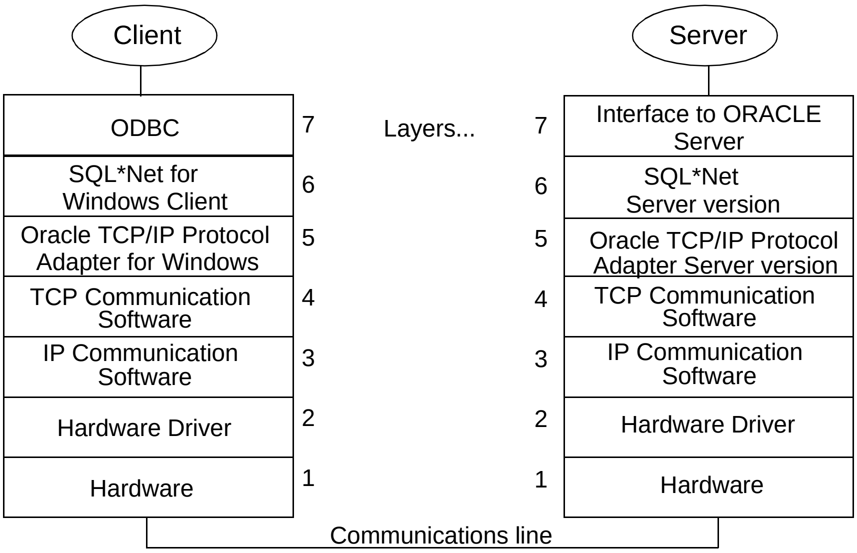

Client
Server
ODBC
SQL*Net for Windows Client
Oracle TCP/IP Protocol Adapter for Windows
TCP Communication Software
IP Communication Software
Hardware Driver
Hardware
7
6
5
4
3
2
1
Layers...
Interface to ORACLE Server
SQL*Net Server version
Oracle TCP/IP Protocol Adapter Server version
TCP Communication Software
IP Communication Software
Hardware Driver
Hardware
Communications line

Figure 1-8. Oracle TCP/IP Protocol Adapter for Windows and the OSI model

1.8.2 The TCP/IP software

TCP/IP	is a network protocol suite that includes a transport-layer protocol, the Transport Control Protocol (TCP), and a network-layer protocol, the Internet Protocol (IP). These protocols together transfer data across a network.
TCP	is a protocol that provides transport-layer services under the Open System Interconnect (OSI) model. It is a connection-orientated protocol for establishing reliable, sequenced data transfer between hosts. TCP ensures that data reaches its destination.
IP	is a protocol that provides network-layer services in the OSI model. IP assembles and addresses data packages for transmission to their destinations.

NOTE

For more information on the TCP and IP protocols, refer to the manual whish was attached to your TCP/IP software.

1.9 User Interface

The user interface fully employs the MS Windows standard. It is recommended that you study the MS Windows documentation if you are not used to performing normal MS Window procedures, such as program start-up, shutdown, mouse actions, window handling, etc.

During installation, the following program groups are created:

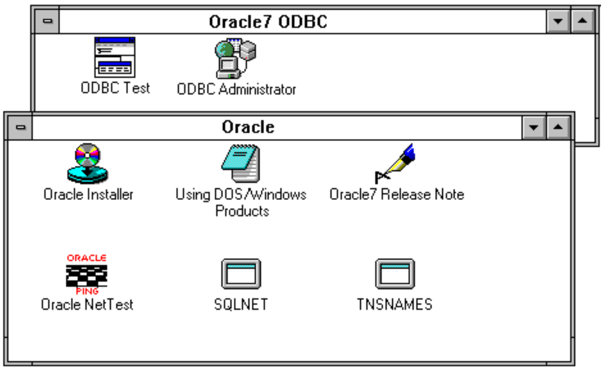


*Figure 1-9. Program groups and program icons, related to the SQL*Net TCP/IP installation*

For more information about the various programs located in the different Oracle related program groups, see the appropriate Oracle documentation distributed with your Oracle software.

Chapter 2 Installation

2.1 Site Planning Environment

Before you start installing the SQL*Net TCP/IP option, consider the following:

- Does the PC meet the requirements for the stated environmental conditions?
  For information about environmental conditions, see the PC’s documentation.
- Is the TCP/IP software installed and configured?
- Are the IEEE 802.3 communication board, and the corresponding driver, installed and configured? To test your network system, refer to your TCP/IP network documentation.
- Are any earlier Oracle SQL*Net versions installed on your PC?
  If so, which version? This information is needed when upgrading.

NOTE

References in this manual to Oracle SQL*Net Version 1, 2, 2.1 or SQL*Net are references to the actual Oracle products. When the term SQL*Net TCP/IP is used, it refers to the AdvaSoft for Windows communication option that uses the various Oracle SQL*Net products.

2.2 Setup

This chapter describes how to install Oracle SQL*Net Version 2.1 products and the Intersolv 2.1 Oracle7 ODBC driver. The following topics are covered in this chapter:

- Software installation
- Upgrading from earlier Oracle SQL*Net versions to SQL*Net Version 2.1
- Additional information concerning network addresses, configuration files and installed Oracle SQL*Net software products.

2.2.1 Installing

To install the various Oracle products included in the SQL*Net TCP/IP installation, you need the following disks:

- AdvaSoft for Windows Installation Disk
- SQL*Net TCP/IP for Windows: four diskettes labelled 1/4, 2/4, 3/4 and 4/4.

2.2.1.1 Installation procedure overview

Since AdvaSoft for Windows uses the Oracle Installer for installation of the Oracle products, the installation guide tends to be somewhat complicated and difficult for the reader to follow. Figure 2-1 gives an installation overview that describes the major steps taken during the installation. Keep this picture in mind during the installation—it will help orient you regarding where you are in the installation procedure at any given time.

The major steps are:

1. Start of the AdvaSoft installation program
2. Oracle Installer installation (disks 1/4 and 2/4)
3. Start of the Oracle Installer
4. Installation of the Oracle software products
5. Oracle Installer Exit
6. Intersolv Oracle7 ODBC driver installation (disks 3/4 and 4/4)
7. Exit the AdvaSoft installer.

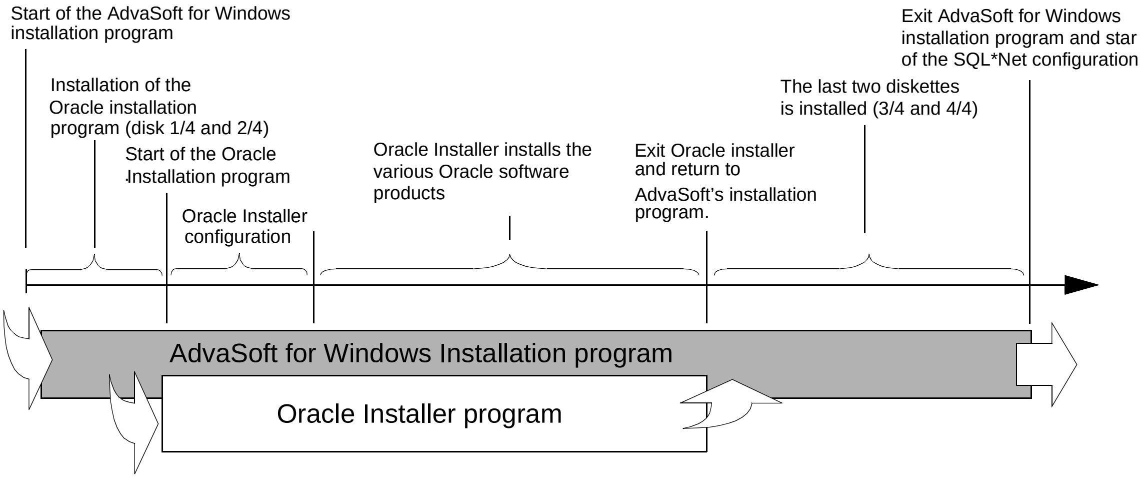
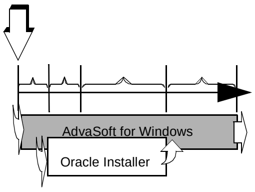

Start of the AdvaSoft for Windows installation program
Installation of the Oracle installation program (disk 1/4 and 2/4)
Start of the Oracle Installation program
Oracle Installer configuration
Oracle Installer installs the various Oracle software products
Exit Oracle installer and return to AdvaSoft's installation program.
The last two diskettes is installed (3/4 and 4/4)
Exit AdvaSoft for Windows installation program and star of the SQL*Net configuration
AdvaSoft for Windows Installation program
Oracle Installer program

Figure 2-1. Installation description

2.2.1.2 Start installation

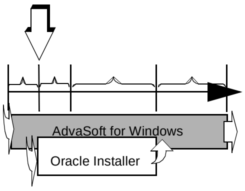


A complete installation starts with setting up and preparing your Oracle software. You do this using the AdvaSoft installation program. For a description of how to start and use the AdvaSoft for Windows installation program, refer to the *AdvaSoft for Windows User's Guide*, chapter 2.

1. In the AdvaSoft for Windows Installation window, check the SQL*Net TCP/IP option and accept by clicking the Continue button.
2. The installation program prompts you for the disks labelled SQL*Net TCP/IP for Windows 1/4 and 2/4. Insert the disks and choose OK. AdvaSoft's installation program will copy the Oracle product's files from the floppy disk to the temporary directory on your hard disk drive.

NOTE

AdvaSoft's installation program creates a temporary directory called C:\orawin\oratest during the copying procedure. This directory is used during the installation process. When the installation is completed, the directory is deleted by AdvaSoft's installation program. If the installation procedure is interrupted you must manually delete this directory.



After the copying procedure is complete, AdvaSoft's installation program starts the Oracle installation program, Oracle Installer, automatically.

2.2.1.3 Setting up the Oracle installer

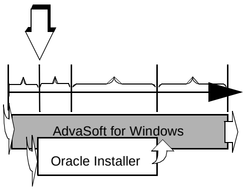
The Oracle installer is needed to install the various Oracle products that AdvaSoft uses.

For help during the installation, choose Using Oracle Installer... from the Help menu.

NOTE

If you have a previously installed Oracle Windows product, such as an earlier version of Oracle SQL*Net for Windows, the Oracle Installer should already be set up in Windows Program Manager.

Make sure, however, that you run Oracle Installer from the AdvaSoft for Windows Installation disk when you install the Oracle Protocol Adapter software. This is to ensure that you use the version especially configured for AdvaSoft for Windows.

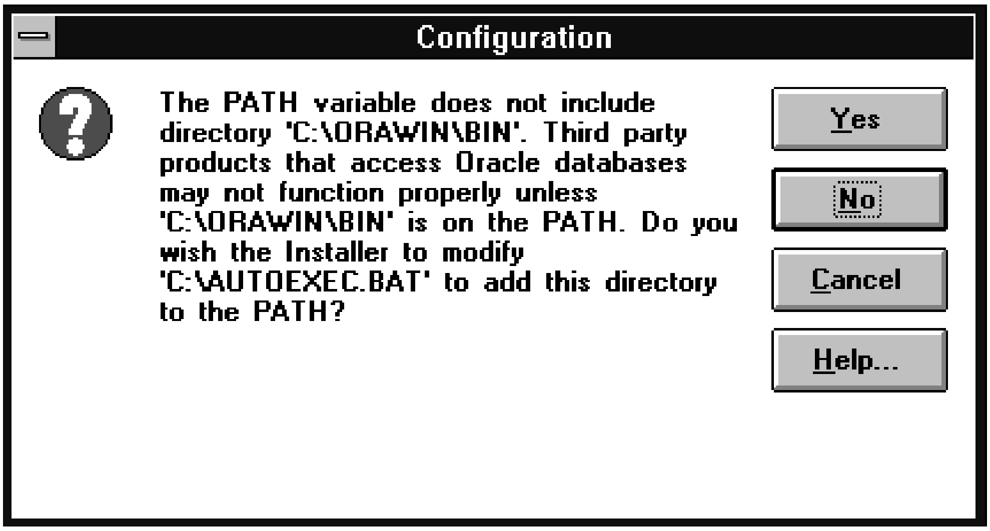


1. Start the Oracle Installer.
   To ensure that you use the version specially adapted for AdvaSoft for Windows, follow steps 1 and 2 in the previous section. The AdvaSoft for Windows Installer automatically loads the Oracle Installer when the copying procedure is completed. AdvaSoft for Windows Installer also pre-configures the Available Product listing and selects all list items.
2. Oracle Installer prompts that English is the chosen language. Confirm that English is the chosen language by clicking OK.

   Now the Oracle Installation Settings dialog is displayed.
3. The Oracle Installer prompts you for your company name and for the Oracle home directory (if a previous Oracle version exists, its home directory will be the default). Specify the company name and the drive and directory path, or choose OK to accept the default location.

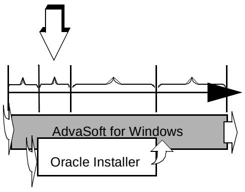
   The Installer displays the progress dialog box that shows the percentage of the installation complete.

4. If the Oracle home directory is not in your PATH statement, a dialog appears asking if you want to add the Oracle home directory to the AUTOEXEC.BAT file. You can select either Yes or No.



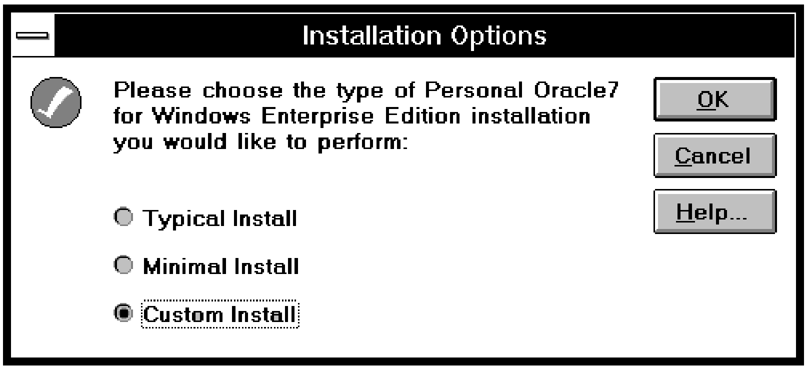
The PATH variable does not include directory 'C:\ORAWIN\BIN'. Third party products that access Oracle databases may not function properly unless 'C:\ORAWIN\BIN' is on the PATH. Do you wish the Installer to modify 'C:\AUTOEXEC.BAT' to add this directory to the PATH?

Figure 2-2. Information dialog



If you select No you have to manually add the C:\ORAWIN variable to your Path statement in the Autoexec.bat file. Several vendors require entries in the AUTOEXEC.BAT file. Please check your TCP/IP vendor documentation to see which vendors require these entries.

5. A dialog with three installation choices will be displayed.



Please choose the type of Personal Oracle7 for Windows Enterprise Edition installation you would like to perform:

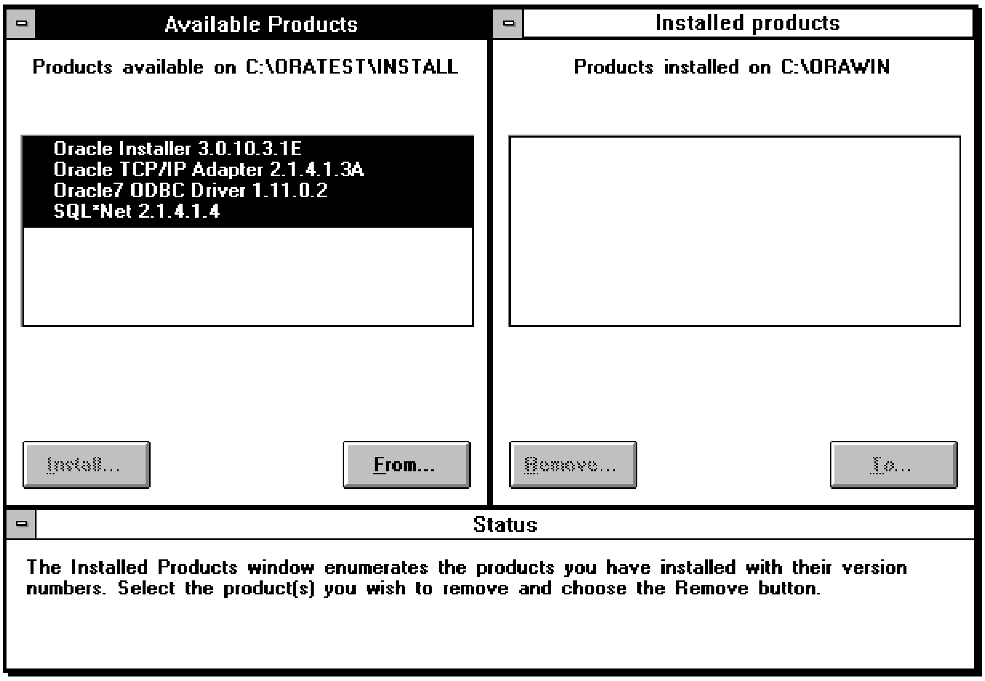
○ Typical Install
○ Minimal Install
● Custom Install

Figure 2-3. The Oracle installation options dialog

You must select the Custom option. Otherwise, the installer prompts you for missing product files.

During installation, a progress bar shows the percentage of the installation done (as in AdvaSoft for Windows). Messages appear indicating file names and actions taken. Once the installation of the Oracle installer is complete, it is indicated to you.

Now the Available Products and the Installed Products window is displayed. You may want to become familiar with the Installer before you continue with the installation procedure.



Available Products

Products available on C:\ORATEST\INSTALL

Oracle Installer 3.0.10.3.1E
Oracle TCP/IP Adapter 2.1.4.1.3A
Oracle7 ODBC Driver 1.11.0.2
SQL*Net 2.1.4.1.4

Installed products

Products installed on C:\ORAWIN

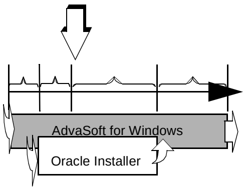
Status

The Installed Products window enumerates the products you have installed with their version numbers. Select the product(s) you wish to remove and choose the Remove button.

Figure 2-4. The Oracle installer main window

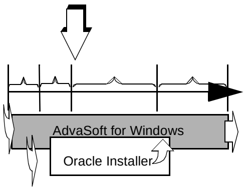
The Oracle Installer window contains the following three windows:

Available Products	Lists all the products needed for AdvaSoft for Windows.
Installed Products	Lists all Oracle products installed in your Oracle home directory. The default name of the Oracle home directory for Windows is \ORAWIN, though you may have selected another name when you set up the Installer. The Oracle Installer should be listed in the Installed Products window at this time.
Status	Provides feedback on the task you are performing.
On-line help	The Oracle Installer contains an on-line help facility. To display help on the features and functions of the Oracle Installer, select Using Oracle Installer from the Help menu.



With this, the installation of the Oracle Installer is completed and the installation procedure continues with installation of remaining Oracle products.

2.2.1.4 Installing the Oracle software.

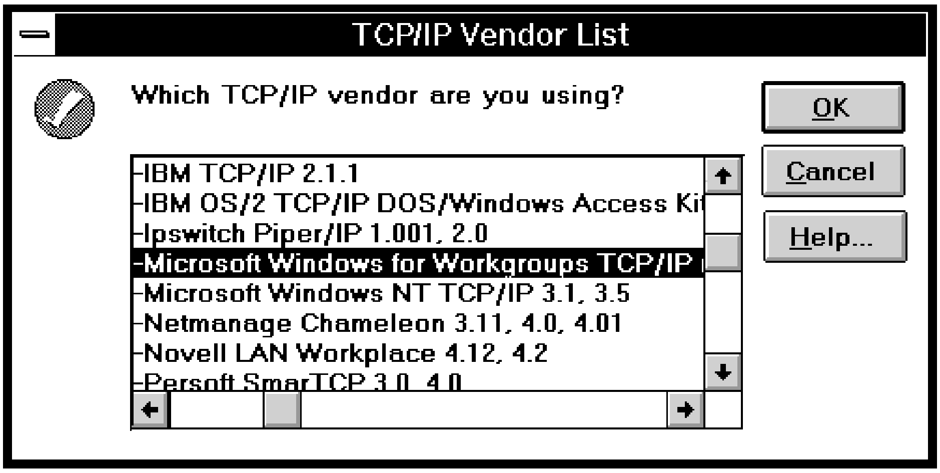


After the Oracle Installer set up is completed, you are ready to install Oracle SQL*Net Version 2.1, Oracle TCP/IP Protocol Adapter and some Oracle support products.

1. Click the Install button in the Available Products window.

   All products in the window will be installed. These products are essential for the function of the AdvaSoft for Windows software. Notice that a message is displayed in the Available Products window to inform you how much disk space Oracle Products require and how much disk space is free.

2. Oracle Installer prompts you for the name of your TCP/IP network software vendor.



TCP/IP Vendor List

Which TCP/IP vendor are you using?

-IBM TCP/IP 2.1.1
-IBM OS/2 TCP/IP DOS/Windows Access Ki
-Ipswitch Piper/IP 1.001, 2.0
-Microsoft Windows for Workgroups TCP/IP
-Microsoft Windows NT TCP/IP 3.1, 3.5
-Netmanage Chameleon 3.11, 4.0, 4.01
-Novell LAN Workplace 4.12, 4.2
-Persoft SmarTCP 3.0, 4.0

Figure 2-5. Vendors dialog

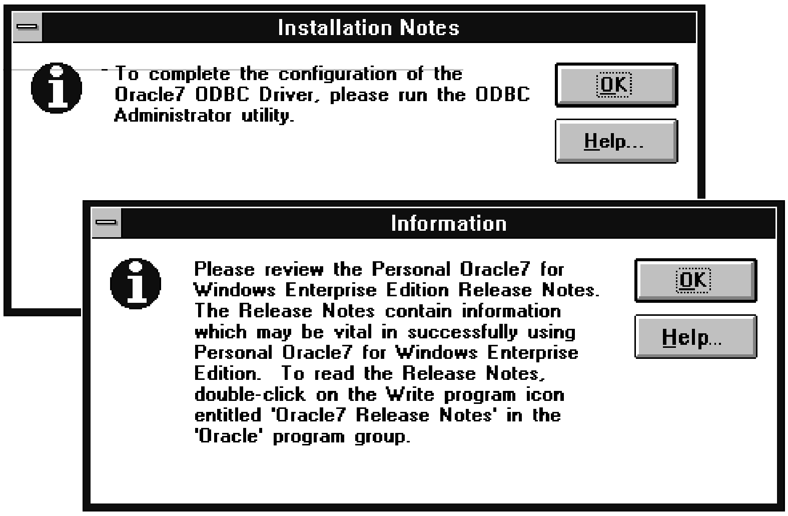
   If the Installer cannot locate the necessary versions of both the Required Support Files and Oracle SQL*Net for Windows client, it prompts you to insert the necessary product disk(s).

   It is recommended that you use a MS TCP/IP product that supports the Winsock.dll Version 1.1, listed among the vendors TCP/IP products.

3. Exit Oracle installer.

   To exit Oracle Installer, and return to the AdvaSoft Installer, choose Exit from the File menu.

Before the Oracle Installer exits, two system notes will be displayed.



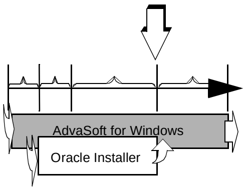
To complete the configuration of the Oracle7 ODBC Driver, please run the ODBC Administrator utility.

Please review the Personal Oracle7 for Windows Enterprise Edition Release Notes. The Release Notes contain information which may be vital in successfully using Personal Oracle7 for Windows Enterprise Edition. To read the Release Notes, double-click on the Write program icon entitled 'Oracle7 Release Notes' in the 'Oracle' program group.

Figure 2-6. The system messages shown during Oracle Installer shut down

During the installation, following Oracle products are installed:

- Oracle Installer
- Oracle TCP/IP Adapter
- Oracle ODBC driver (not used)
- Oracle SQL*Net Version 2.1.



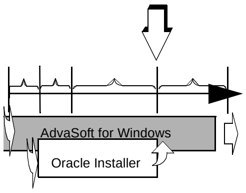
The reason the Oracle ODBC driver is installed when not used is that this software packet contains the various utility programs necessary for configuration, supervision and maintenance of the Oracle products. See also Figure 1-9, which shows the utility programs.

The next step in the installation procedure is to install the Intersolv Oracle7 ODBC driver, recommended by Oracle.

2.2.1.5 Intersolv Oracle7 ODBC driver installation

Back in AdvaSoft's installation program, after you exit Oracle Installer, the progress bar in the AdvaSoft Installer Window is updated according to the newly installed Oracle SQL*Net Version 2.1 software options.

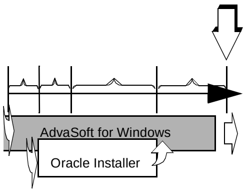
The next step is to install the Intersolv 2.1 Oracle7 ODBC driver.



1. AdvaSoft's installation program prompts you for the last two program diskettes, labelled 3/4 and 4/4, containing the Intersolv Oracle7 ODBC driver. Insert the diskettes, when prompted, and click the OK button.

   AdvaSoft's installation program will copy and place the program files on your PC's harddisk.

2. Exit AdvaSoft's installation program.



With this, the installation is complete. If you want information about directories or upgrading an older Oracle SQL*Net version, see the following sections.

If you are satisfied with the installation, go on to the SQL*Net TCP/IP configuration. Refer to Section 3.5 Application Procedures for instructions on how to carry out the configuration.

2.2.2 Directory structure

After the installation is completed, Oracle Installer has created the following directory structure:

\ORAWIN	is the Oracle home directory.
\ORAWIN\BIN	holds executable programs and batch files for the ORACLE database tools and the dynamic link libraries (DLL's) used by Oracle SQL*Net and the Oracle Protocol Adapter.
\ORAWIN\DB	Sholds the messages and scripts.
\ORAWIN\ORAINS	Tholds files used by the Oracle Installer.
\ORAWIN\NETWORK	is created when you install Oracle SQL*Net for Windows, Version 2.1. This directory contains the following subdirectories:

\ADMIN	holds all of the *.ORA files used by Oracle SQL*Net for Windows, Version 2.1.
\LOG	holds log files placed here by default.
\TRACE	holds trace files placed here by default.

2.2.3 Upgrading from an earlier Oracle SQL*Net version

2.2.3.1 A note on upgrading

If you want to upgrade from Oracle SQL*Net Version l.x, install SQL*Net TCP/IP first (see previous sections). Then follow the instructions in Section 2.2.3.2 Upgrading from Oracle SQL*Net Version 1.x to locate the Version l.x connect string aliases that you will update to Version 2.1 format.

If you wish to use both Oracle SQL*Net Version l.x and Version 2.1 products on your system, install SQL*Net Version 2.1. The Installer copies the SQL*Net Version 2.1 products into new subdirectories of the Oracle home directory. Your original Oracle SQL*Net Version l.x files and directories remain unchanged.

If Oracle SQL*Net Version 2.0 is already installed on your AdvaSoft station, and you want to update the SQL*Net software version, you must re-install SQL*Net. To re-install SQL*Net, follow the steps in the SQL*Net TCP/IP installation description.

2.2.3.2 Upgrading from Oracle SQL*Net Version 1.x

To upgrade from Oracle SQL*Net Version 1.*x* to Version 2.1, you must re-create all SQL*Net Version 1.*x* connect strings as Version 2.1 connect descriptors. With SQL*Net Version 1.*x* products, you can find connect strings in the following locations:

- in the ORACLE.INI file as the value of the LOCAL, REMOTE or SQLNET parameters.
- in an operating system batch file used to start an Oracle product.
- in a menu-based Oracle product, such as SQL*FORMS, as the value of a menu item.

Identify each occurrence of the SQL*Net Version 1.*x* connect strings from the above sources. Then use the information in the Section 3.5.4 Specifying TCP/IP addresses to create connect descriptors and connect descriptor service names for these strings in each client’s TNSNAMES.ORA file.

2.2.3.3 Migrating from Oracle SQL*Net Version 1 to Oracle SQL*Net Version 2.1

This guide assumes that you are already a user of SQL*Net Version 1 either with Oracle RDBMS V6 or with the Oracle7 Server. If this is the case, the following option is available to you:

- Migrate to SQL*Net Version 2.1 over a period of time, allowing a period of coexistence where both SQL*Net Version 1 and Version 2.1 are being used simultaneously.

Oracle recommends that you use this approach because it provides you with a fallback position if you encounter difficulties or problems. See the *Oracle TCP/IP Protocol Adapter for Windows Installation and User Guide* and the *Oracle SQL*Net for Windows User’s Guide Version 2.1* for a description of the migration procedure and general information.

2.2.4 Verifying the installation

After you have completed all steps in the installation procedure, the Oracle SQL*Net Version 2.1 program is still not operable. You must first complete the configuration, as described in Chapter 3 Configuration/Application Building. For this reason, you cannot verify the installation using the SQL*Net software at this point.

After completing installation of the SQL*Net software, however, if you have any doubt about the installation, see the verifying and fault finding descriptions and procedures listed in this chapter to verify the installation.

Remember though that the configuration of your server, for example an Advant Station 500 series IMS, is described in the server documentation. If the Oracle SQL*Net software is not functioning properly, and all settings in the AdvaSoft station are checked and approved, fault finding must be performed in the server part of Oracle SQL*Net and Oracle7 database.

2.3 Shut-down Procedures

The normal way to shut down the SQL*Net TCP/IP software is to close the client application using SQL*Net, for example, a MS-Excel spread sheet.

2.4 Start-up Procedures

SQL*Net TCP/IP and ODBC are automatically started when you start the client application using SQL*Net, for example, a MS-Excel spread sheet.

2.5 Product Verification

To see the Oracle SQL*Net version, you can run the Oracle Installer (found in the c:\orawin\orainst directory) to verify the version of the SQL*Net software and the names of the Oracle products currently installed on your hard disk.

To check the current installed AdvaSoft for Windows options, and their versions, select the Help menu, found in AdvaSoft for Windows main window. In the Help menu, select About and then Installation.

Chapter 3 Configuration/Application Building

3.1 Design Considerations

After installation, you must configure the SQL*Net software. Until you have completed the configuration, no SQL*Net operations can be performed.

The configuration procedure consists of:

- Setting up the ODBC driver
- Some additional configuration options.

For clients and servers to communicate on a network, you must install not only the same protocol, but also the SQL*Net TCP/IP software for that protocol, on both the server and the client workstations.

For example, both TCP/IP and SQL*Net TCP/IP must be installed on both the client side and the server side of the network in order to use ORACLE on a TCP/IP network.

Verify that the server and client versions match.

3.2 Capacity and Performance

The performance depends on the PC hardware used and the load in the Oracle Server station and in the related controller. Figure 3-1 shows the time it takes to read the attribute NAME and VALUE for various quantities of AI objects. The time also includes the time required to open and present the data in a process display in AdvaCommand for Windows.

This test has been performed with an ABB Master Advant Station 515 IMS *1.1/0 as the Oracle Server and the following PC configuration:

Hewlett-Packard Vectra XU Pentium/90

- 16 MB internal RAM
- Matrox MGA Ultima Plus PCI-graphic with 2 MB video RAM
- Microsoft TCP/IP 3.11a.

3.2.1 AdvaCommand view display update time

In Figure 3-1, the time for the curve ‘First Update’ also includes the time to log on to the Oracle Data Base. You need only log on to the database the first time you access data from the Server station. If you use a PC type 486/66DX2, the display Call-up time is increased by approximately 50 percent.

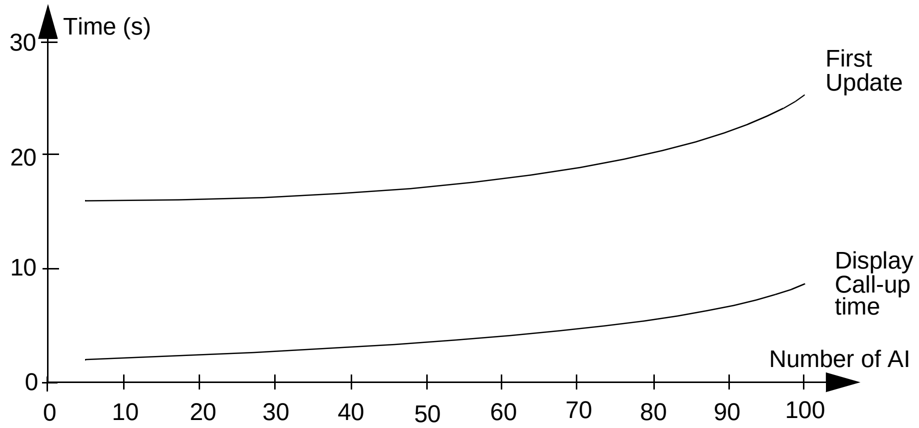


*Figure 3-1. Display update time performance of AdvaCommand and SQL*Net TCP/IP option.*
Note that the AI’s is divided in groups of five, in each select statement.

In Figure 3-2, the Initial CPU Load line shows CPU load when AdvaCommand is not running. IMS CPU load is the total load with AdvaCommand running.

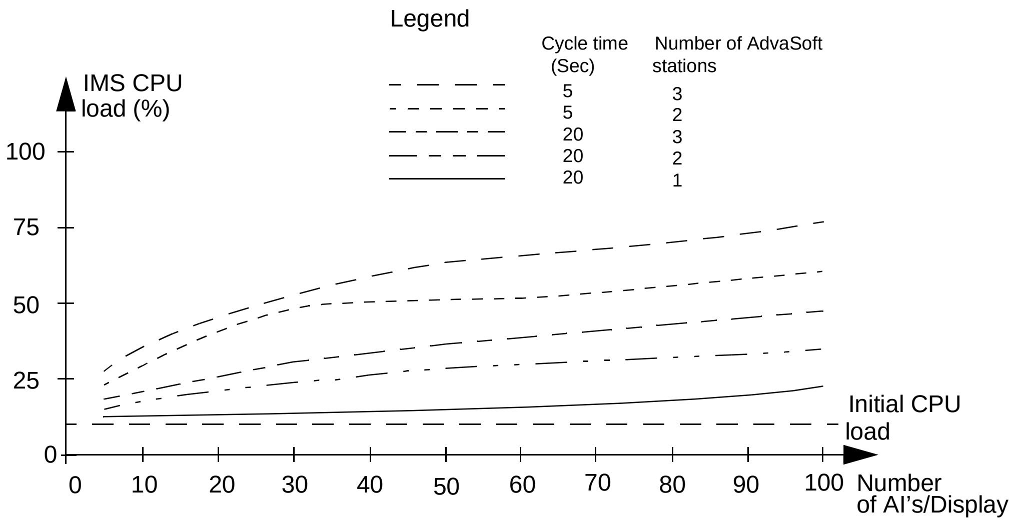


*Figure 3-2. CPU load with AdvaCommand using the SQL*Net TCP/IP option.*
Note that during test the AI’s was divided in groups of five
in each select statement

3.2.2 AdvaCommand Historical Display update performance

Chart call-up time performance, using AdvaCommand under ideal conditions, is shown in the table below. The call-up time is independent of the number of AdvaSoft stations or the number of pens used (number of trends written in a chart). Cycle time used during the test was 30 sec. Time span used was 1 h.

Table 3-1. Chart call-up time performance

Chart call-up time 1st time	60 s
Chart call-up time 2nd time	30 s

3.3 Application Start-up

The Oracle SQL*Net version 2.1 software is automatically started by the application software.

3.4 Tutorial

3.4.1 ODBC Setup

After installing the Oracle SQL*Net Version 2.1, Oracle Protocol Adapter and the Intersolve Oracle7 ODBC Driver, you must run the ODBC setup to provide access to the SQL database.

You must set up, and name, a data source for connection with the designated Oracle7 database. In this tutorial, the database is residing on an Advant Station 500 series IMS. The ODBC Setup dialog box requires different information for each kind of SQL database. If you do not know all the information for the data source you want to set up, press the Help button in the dialog box. Information is displayed that will assist you in setting up data sources for the driver you have selected. Contact your SQL administrator for information on how your SQL databases are set up on your network.

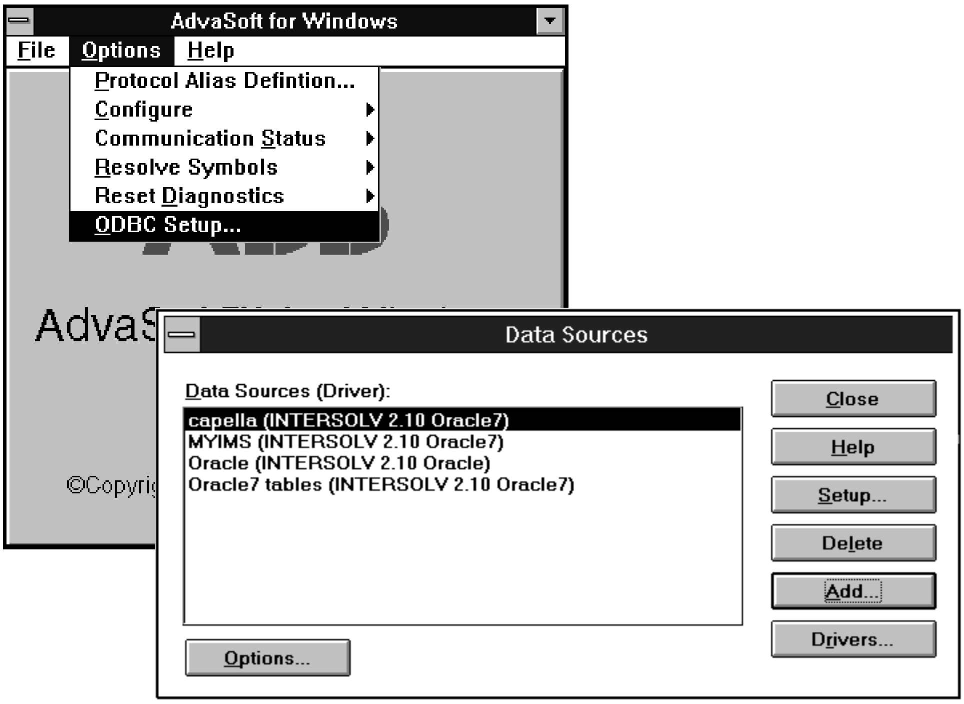
In this tutorial, you are using the following configuration:

- AS 500 series IMS as a server node
- Host Name ‘MYIMS’ for server node

1. You can start the ODBC setup dialog in two ways:
   - Double click on the Control Panel icon and, in the Control Panel, double click on the ODBC setup icon

     or

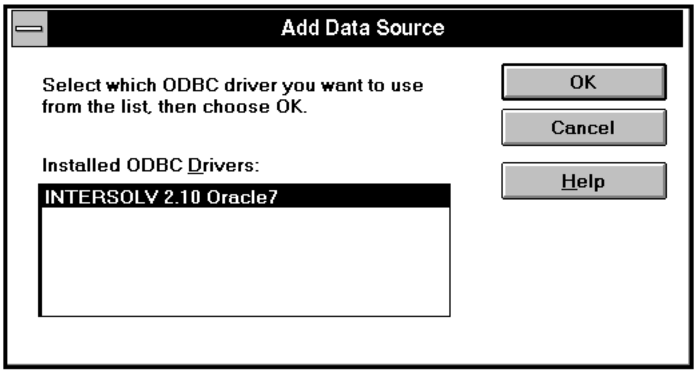
   - Choose the ODBC Setup from the Option menu in the AdvaSoft main program.



Data Sources (Driver):
capella (INTERSOLV 2.10 Oracle7)
MYIMS (INTERSOLV 2.10 Oracle7)
Oracle (INTERSOLV 2.10 Oracle)
Oracle7 tables (INTERSOLV 2.10 Oracle7)

Figure 3-3. AdvaSoft main window and the ODBC/Data sources windows

2. Select Add

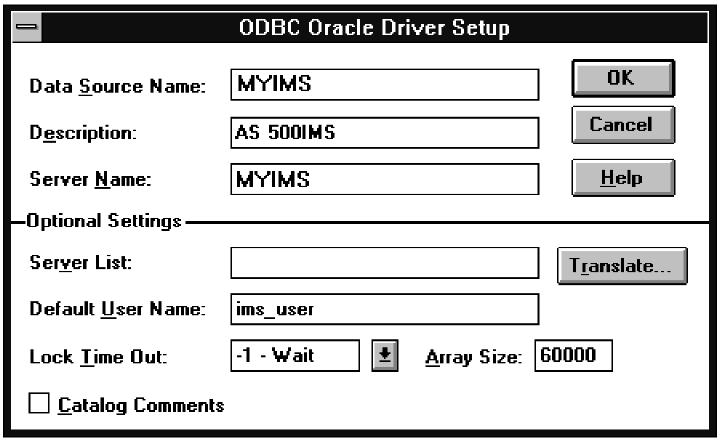


Select which ODBC driver you want to use from the list, then choose OK.

Installed ODBC Drivers:
INTERSOLV 2.10 Oracle7

Figure 3-4. Add Data Source dialog

3. Select Intersolv 2.1 Oracle7 as ODBC driver



Data Source Name: MYIMS
Description: AS 500IMS
Server Name: MYIMS
Server List:
Default User Name: ims_user
Lock Time Out: -1 - Wait
Array Size: 60000
☐ Catalog Comments

Figure 3-5. Intersolv Oracle7 ODBC setup dialog box

4. In the ODBC Oracle Driver Setup dialog box:
   a. Specify the Data Source Name as ‘MYIMS’.
   b. Specify a description of the data source. For example, "AS 500 IMS".
   c. Specify Server name as MYIMS.
   d. Specify Default User Name as *ims_user*.
      You always use the *ims_user* as user name when working as client towards an Oracle7 database located in an AS 500 IMS.
   e. Server List is an optional item that does not have to be specified.

The name MYIMS must be defined in the TNSNAME.ORA file, see Section 3.5.4 *Specifying TCP/IP addresses*.

From your client application, you refer to ‘MYIMS’ as the database source, and use it together with your Oracle User name and Password to log in to the database.

3.5 Application Procedures

3.5.1 ORACLE.INI configuration

During installation, the ORAINST program may prompt you for the name of the vendor whose TCP/IP transport you wish to use. It automatically makes the required changes to your ORACLE.INI file.

You can select a different TCP/IP transport by manually changing the value of the TCP_VENDOR parameter in your ORACLE.INI file. This parameter has the format:

```
TCP_VENDOR = <vendor_key>
```

where vendor_key is dependent on the TCP/IP vendor used (for most TCP/IP vendors, you should use TCP_VENDOR=WINSOCK).

3.5.2 Identifying the destination addresses

Some vendors may use a HOSTS file to map host names to Internet addresses. See your vendor’s documentation for more information about the HOSTS file. See also Section 3.5.3 *Configuring the HOSTS file* for information on configuring your HOSTS file if your vendor uses one.

During installation, the AdvaSoft for Windows Installer checks for a program group called ORACLE in the Program Manager. If no such program group exists, the AdvaSoft Installer creates this group. AdvaSoft Installer places the TNSNAMES.ORA and SQLNET.ORA files in this group.

TNSNAMES.ORA, the client configuration file, defines the SQL*Net version 2.1 connect descriptors for the client. The file can be stored on either a local file system or on a database server called Oracle Names Server. A connect descriptor is a group of defined keywords that describe the location of TNS applications on your network (for example, Network Listener on a remote Oracle7 server).

SQLNET.ORA is used to specify tracing and logging as well as other, optional parameters. SQLNET.ORA is also used to define one or more Names server addresses, if Names servers is used. For this tutorial, it uses the NAMES.PREFERRED_SERVER parameter, see Section 3.5 *Application Procedures*.

After installation is completed, you must edit these files in accordance with your actual network configuration. See Section 3.5.4 *Specifying TCP/IP addresses*.

3.5.3 Configuring the HOSTS file

Depending on your vendor, your workstation configuration and your network configuration, your TCP/IP software may possibly use a HOSTS file to map host names to Internet addresses.

The mapping for each host listed in the HOSTS file is specified on a single line in the following format:

internet_address hostname [alias]

where:

internet_address:	is the Internet address of the host computer (a four-byte value specified in decimal, octal or hexadecimal). Ask your network administrator for the host machine's TCP/IP Internet address.
hostname:	is the name of the host associated with the Internet address.
alias:	is an optional alternate name for the host. You can have more than one alias for any single host. Aliases can be set any time you edit the HOSTS file.

For example, a host named "AS500IMS" might be referenced in the HOSTS file as follows:

```
12.34.56.78 AS500IMS [MYNAME]
```

where:

12.34.56.78	is the Internet address of the remote host.
AS500IMS	is the name of the remote host.
MYNAME	is an optional alias for theAS500IMS host.

3.5.4 Specifying TCP/IP addresses

Specifying TCP/IP addresses is done in the TNSNAMES.ORA file. The following is an example of the ADDRESS keyword used with the SQL*Net TCP/IP in a typical AdvaSoft for Windows installation.

In the example below, a client machine connects to an AS 500 IMS station named MYIMS on a TCP/IP network. Notice that AS 500 IMS uses port number 1526.

```
################
# Filename......: tnsnames.ora
# Client Profile: tcp.us.oracle.com
# Date..........: 15-JUN-94 17:02:21
################
myims.world =
  (DESCRIPTION =
    (ADDRESS_LIST =
        (ADDRESS =
          (COMMUNITY = tcp.world)
          (PROTOCOL = TCP)
          (Host = myims)
          (Port = 1526)
        )
    )
    (CONNECT_DATA =
       (SID = ims)
    )
  )
```

Port Number

In the example above, the following syntax is used:

COMMUNITY is used to identify a group of network clients and servers using a TNS-based software. A community is a group of machines using the same transport level protocol such as TCP/IP, i.e., machines that share a common protocol are said to be members of the same community. COMMUNITY is optional and is generally used when connecting to multiple networks.

PROTOCOL indicates the type of network on which the TNS application resides. When using the Oracle TCP/IP Protocol Adapter, always use the keyword value pair, PROTOCOL=TCP/IP.

HOST and PORT identifies a TNS-based application on the network. In the case of AdvaSoft for Windows, the local hostname, MYIMS, and port number 1526, always identify the location of an AS 500 IMS server.

SID is the System ID of the database you want to use on the remote server. These characters must be defined in the database listing file, LISTENER.ORA, on the server as *sid_service name*. The TNSNAME.ORA file uses the same *sid_service name*. The *sid* is always specified as *ims* for an AS 500 IMS server.

The client requires a SQLNET.ORA file with one or more Name Server addresses defined in the NAMES.PREFFERED_SERVERS parameter. These servers are connected in order until a response is returned. Below is an example of such a file.

```
################
# Filename......: sqlnet.ora
# Client Profile: sample
# Date..........: 09-DEC-93 11:47:33
################
AUTOMATIC_IPC = OFF
SQLNET.EXPIRE_TIME = 2147483647
trace_level_client = off
trace_file_client = sqlnet
trace_directory_client=C:\ORAWIN\network\trace
log_file_client = sqlnet
log_directory_client=C:\ORAWIN\network\log
netman.trace_level=off
netman.trace_file=netman
netman.trace_directory=C:\ORAWIN\network\trace
name.default_zone = world
NAMES.DEFAULT_DOMAIN = world
Names.preferred_server=
  (ADDRESS_LIST=
       (COMMUNITY=myims.WORLD
       (PROTOCOL=TCP)
       (HOST=myims)
       (PORT=1526)
     )
  (CONNECT_DATA=
    (SID=ims)
  )
)
```

This part is optional and used only in a NAMES server configuration. See Section 3.5.2 *Identifying the destination addresses*

3.5.4.1 Testing the Network

Once your name server (if you are using one) or your HOSTS and SERVICES files are set up, test that they are correct and that your network operating system is functioning. Use the PING utility, included in most network software products, to check that the TCP/IP network operating system is working correctly. If no contact to the server can be verified, the following is a partial list of reasons why you may not be able to access a host:

- the path is specified incorrectly
- the server is not accessible via the network
- the hostname or alias does not exist in the HOST file
- the remote host is not on-line
- the Domain Name Server is not functioning (if a Name Server Service is configured).

For more information, refer to the documentation for your third-party network software.

3.5.5 Setting up the ODBC driver

See the Section 3.4 *Tutorial* for a description of the ODBC setup procedure.

3.6 Configuration/Application Building Menus

SQL*Net TCP/IP, as a software product, has no user interface. Therefore, no windows or file operations can be described, nor can any examples of windows, dialog boxes or file trees be presented.

The ODBC setup has the following windows and menus:

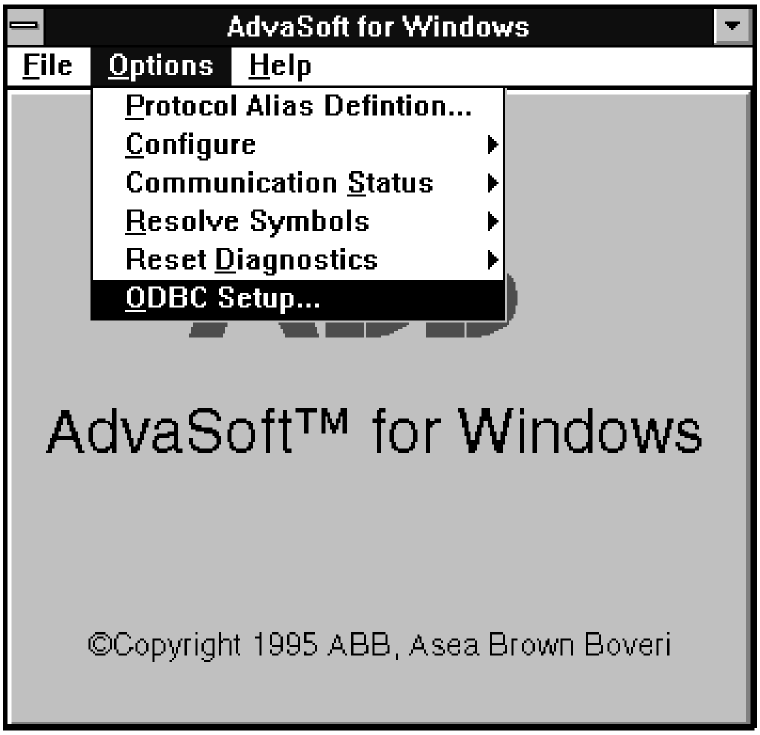


Figure 3-6. The ODBC Setup menu item in AdvaSoft for Windows main window

Chapter 4 Runtime Operation

4.1 Product Operation

SQL*Net TCP/IP starts when called on by a client application. No special configuration or manual loading of the SQL*Net TCP/IP for Windows is required. However, before you can use SQL*Net TCP/IP for Windows, you must first start your Windows operating system. SQL*Net is terminated when the client application is closed.

4.2 Operating Overview

No manual operation during runtime is necessary.

For supervision of the SQL*Net software status, you can use the Oracle products included in the SQL*Net software installation, for example, Oracle Nettest. See Section 5.4 Fault Finding and User Repair.

4.3 Runtime Tutorial

Once installation and the initial configuration are completed, no runtime operation is required. For this reason, no special tutorial is included in this chapter.

4.4 Operating Instructions

No manual operation during runtime is necessary because SQL*Net is a background application which runs hidden from the user.

To add, delete or change database sources, refer to Section 3.5 Application Procedures for information.

4.5 Runtime Operation Menus

SQL*Net has no user interface other than, indirectly, the ODBC setup menu item, placed in AdvaSoft’s main window Options menu. See Figure 3-6.

Chapter 5 Maintenance

5.1 Preventive Maintenance

To avoid a situation where all the SQL*Net TCP/IP configuration is lost due to, for example, a disk crash or faulty handling (the configuration files are deleted by mistake), it is strongly recommended that you back up the following configuration files:

- ORACLE.INI
- TNSNAMES.ORA
- SQLNET.ORA (optional for a client, but must exist to run Oracle Network manager)
- HOSTS.
  Depending on your vendor, your workstation configuration and your network configuration, it is possible your TCP/IP software may use a HOSTS file to map host names to Internet addresses. The location of the HOST file depends on your TCP/IP software.
- CONFIG.SYS
- WIN.INI
- AUTOEXEC.BAT.

It is recommended that, at a minimum, you perform a backup every time one of the configuration files is changed. This is in addition to the normal maintenance work, including periodic system backup.

5.2 Hardware Indicators

SQL*Net TCP/IP uses no hardware indicators for indicating system status.

5.3 Error Messages

A listing of error codes and messages that might occur when running Oracle SQL*Net for Windows follows. After each message, the probable cause of the error and the action you can take to correct it are indicated.

5.3.1 Oracle Installer Error Messages

DISK_FULL

Cause: Indicates there is not enough disk space on the destination volume to copy the selected program.

Action: Create space on the destination volume.

FILE_NOT_FOUND

Cause: It was not possible to locate a file on the source or destination media.

Action: Run a utility program to locate any problems with the source or destination media; the media could be the CD-ROM drive, a network drive or a floppy drive.

OS_ERROR

Cause: There is an unexpected operating system error.

Action: Run a utility program to locate any problems with the source or destination media; the media could be the CD-ROM drive, a network drive or a floppy drive.

PERMISSION_DENIED

Cause: The network has denied permission to perform the selected action.

Action: Check with the network administrator; make sure that you have Supervisor privileges and can perform the selected action.

Cause: There is a file share problem with the TSR program SHARE.EXE.

Action: Modify AUTOEXEC.BAT to increase the number of files to share.

Cause: There is a conflict between DR DOS 6.0 and Windows 3.0.

Action: Use a different version of DOS.

READ_ERROR

Cause: A problem has been detected on the source or destination media while executing an I/O operation.

Action: If in a network environment, verify that you have read permission for the networked file.

Action: Run a utility program to locate any problems with the source or destination media; the media could be the CD-ROM drive, a network drive or a disk drive.

WRITE_ERROR

Cause: A problem has been detected on the destination media while executing an I/O operation

Action: If you are in a network environment and installing onto the network, verify that you have permission to write to a network drive or a disk drive.

Action: Run a utility program to locate any problems with the source or destination media; the media could be the CD-ROM drive, a network drive or a disk drive.

5.3.2 Codes 6100 - 6136: Oracle SQL*Net TCP Errors

ORA-6100 NETTCP: Incorrect Message Type from host

Cause: The SQL*Net TCP/IP driver received a message with an unrecognizable message type. There may be a communications or hardware problem.

Action: Contact your local ABB representative responsible for this product.

ORA-6101 NETTCP: Incorrect Number of Bytes Written

Cause: The TCP/IP driver sent a message that was apparently successful, but the number of bytes transmitted did not match the number of bytes supplied to the driver. There may be a communications or hardware problem.

Action: Contact your local ABB representative responsible for this product.

ORA-6102 NETTCP: Cannot Allocate Context Area

Cause: The TCP/IP driver could not allocate heap space for the context area.

Action: Increase the application size. Contact Oracle Customer Support.

ORA-6103 NETTCP: Send Out-of-band Message Failed

Cause: The TCP/IP driver failed to send an out-of-band break message across the connection. There may be a communications or hardware problem.

Action: Contact your local ABB representative responsible for this product.

ORA-6104 NETTCP: Cannot Set Up Process Group for Socket

Cause: The TCP/IP driver failed to bind the communications channel to client/server process for out-of-band break handling.

Action: Contact your local ABB representative responsible for this product.

ORA-6105 NETTCP: Remote host is unknown

Cause: Host name specified in the login (connect) string is unknown.

Action: Check spelling; make sure that the name is in the TCP/IP host file.

ORA-6106 NETTCP: Socket creation failure

Cause: Process open file quota probably exceeded.

Action: Contact your local ABB representative responsible for this product.

ORA-6107 NETTCP: Oracle network server not found

Cause: No entry in SERVICES file for Oracle server.

Action: Add orasrv entry to the TCP/IP SERVICES file.

ORA-6108 NETTCP: Connect to host failed

Cause: Connection attempt to remote host has failed. Probably means that the SQL*Net TCP/IP server on the remote host is not up, or the host itself is not up (check the latter by targeting it with Telnet).

Action: Start the SQL*Net TCP/IP server process on the remote host.

ORA-6109 NETTCP: Message receive failure

Cause: I/O error occurred while attempting network read operation.

Action: Contact your local ABB representative responsible for this product.

ORA-6110 NETTCP: Message send failure

Cause: l/O error occurred while attempting network write operation.

Action: Contact your local ABB representative responsible for this product.

ORA-6111 NETTCP: Disconnect failure

Cause: Error occurred while closing a socket.

Action: Contact your local ABB representative responsible for this product.

ORA-6112 NETTCP: Invalid buffer size

Cause: The buffer size specified in the login string exceeds the allowed maximum of 4096.

Action: Resubmit with valid buffer size.

ORA-6113 NETTCP: Too many connections

Cause: Total maximum number of concurrently open connections has been reached.

Action: Exit an application with an open connection which is no longer required.

ORA-6114 NETTCP: SID look up failure

Cause: From the remote host's SQL*Net TCP/IP server, the database SID, specified in the login (connect) string, was not recognized.

Action: Add the appropriate SID entry to the config.ora file on the remote host and restart the SQL*Net TCP/IP server.

ORA-6115 NETTCP: Unable to create Oracle logic

Cause: The host's SQL*Net TCP/IP server was unable to create the necessary logicals required by the Oracle server process. See the SQL*Net TCP/IP server log file for more details.

Action: Contact your System Administrator.

ORA-6116 NETTCP: Unable to create orasrv process

Cause: The host's SQL*Net TCP/IP server was unable to create the Oracle server process. See the SQL*Net TCP/IP server log file for more details.

Action: Contact your System Administrator.

ORA-6117 NETTCP: Unable to create orasrv: quota exceeded

Cause: The host's SQL*Net TCP/IP server was unable to create the Oracle Server process because of quota depletion.

Action: Increase quota allocations to the SQL*Net TCP/IP server process.

ORA-6118 NETTCP: Unable to complete handshake

Cause: The Oracle server process was started but failed to complete its initialization.

Action: Contact your local ABB representative responsible for this product.

ORA-6119 NETTCP: Spurious client request

Cause: The host's SQL*Net TCP/IP server was unable to recognize this connection request. See the SQL*Net TCP/IP server- log file for more details.

Action: Contact your local ABB representative responsible for this product.

ORA-6120 NETTCP: Network driver not loaded

Cause: The TCIP/IP network driver is not loaded, or if you are using Windows, the JSB VSL socket is not initialized.

Action: Check that the TCP/IP driver is loaded correctly.

Action: If you are using Windows, do the following:

1. Make sure that the TCP_VENDOR parameter is set correctly in your ORACLE.INI file.
2. Verify that the MSOCKLIB.DLL file is in the BIN directory of your Oracle home directory.
3. Make sure that the vendor specific DLL is in the BIN directory of Oracle home or that the vendor specific TSR file was executed.
4. Verify that the VSL.INI file is in your WINDOWS directory.

ORA-6121 NETTCP: Access failure

Cause: The host's SQL*Net TCP/IP server was unable to test the accessibility of the SID mapping file (specified in config.ora) associated with this connection request. See the SQL*Net TCP/IP server log file for more details.

Action: Contact your local ABB representative responsible for this product.

ORA-6122 NETTCP: Setup failure

Cause: The host’s SQL*Net TCP/IP server was unable to set up the appropriate environment to service this connection request. See the SQL*Net TCP/II’ server log file for more details.

Action: Do the following:

1. Verify that your ORACLE.INI file is in your WINDOWS directory. If it is not, use the Installer to reinstall SQL*Net for Windows.
2. Verify that your WIN.INI file contains the ORA_CONFIG parameter in the [ORACLE] section, and that it equals the path name to your ORACLE.INI file.
3. Verify that your ORACLE.INI file contains an ORACLE_HOME parameter and that it equals the path to your Oracle home directory.

ORA-6123 NETTCP: Cannot set KEEPALIVE

Cause: The host’s SQL*Net TCP/IP server was unable to set the socket KEEPALIVE option. See the SQL*Net TCP/IP server log file for more details.

Action: Contact your local ABB representative responsible for this product.

ORA-6124 NETTCP: Time out waiting for orasrv

Cause: The Oracle server process was started but failed to respond after n seconds.

Action: For heavily loaded systems this is not an uncommon occurrence. Increase the value of *n* (the default is 30) by placing the following entry in the config.ora file:

sqlnet orasrv_wait = <*number of seconds*>

which will come into effect the next time the SQL*Net TCP/IP server is started.

ORA-6125 NETTCP: orasrv exited unexpectedly

Cause: The Oracle server process was started but unexpectedly exited because:

1. There are insufficient quotas to run orasrv.
2. Oracle is not installed. See the orasrv output file for more details. The file will be in the ora_sqlnet directory and will have a name in the form: ora_srvtnn_<sid>.out.

Action: If the action to take is not obvious from the orasrv output file, contact Oracle Customer Support.

ORA-6126 NETTCP: orasrv unable to open network

Cause: The Oracle server process was started but was unable to open the socket passed to it by tcpsrv.

Action: Contact your local ABB representative responsible for this product.

ORA-6127 NETTCP: Unable to change username

Cause: The host’s SQL*Net TCP/IP server could not establish a PROXY LOGIN connection because the client username is unknown (to the host OS).

Action: Create new user account on host.

ORA-6128 NETTCP: Unable to create mailbox

Cause: The host’s SQL*Net TCP/IP server was unable to create a mailbox (needed for IPC communication with the Oracle server process). See the SQL*Net TCP/IP server log file for more details.

Action: Contact your local ABB representative responsible for this product.

ORA-6129 NETTCP: Unable to transfer socket ownership to orasrv

Cause: The host’s SQL*Net TCP/IP server was unable to transfer the network communication handle to the Oracle server process. See the SQL*Net TCP/IP server log file for more details.

Action: Contact your local ABB representative responsible for this product.

ORA-6130 NETTCP: Host access denied

Cause: The host’s SQL*Net TCP/IP server rejected this connection because the client node does not have access privilege, as determined by the contents of the Valid Node Table (VNT), a component of the host’s config.ora.

Action: To grant access, add appropriate entry to the host’s VNT.

ORA-6131 NETTCP: User access denied

Cause: The host’s SQL*Net TCP/IP server rejected this connection because the client user (name) does not have access privilege, as determined by the contents of the Username Mapping Table (UMT), a component of the host’s config.ora.

Action: To grant access, add appropriate entry to the host’s UMT.

ORA-6132 NETTCP: Access denied, wrong password

Cause: The host SQL*Net TCP/IP server rejected this connection because the client password did not match the host password.

Action: To grant access, synchronize the passwords.

ORA-6133 NETTCP: File not found

Cause: The host’s SQL*Net TCP/IP server could not find the SID mapping file (specified in config.ora) associated with this connection request.

Action: Check config.ora for spelling; make correct entry.

ORA-6134 NETTCP: File access privilege violation

Cause: The host’s SQL*Net TCP/IP server did not have READ/EXECUTE permission for the SlD mapping file (specified in config.ora) associated with this connection request.

Action: Change protection on the SID mapping file.

ORA-6135 NETTCP: Connection rejected; server is stopping

Cause: The host’s SQL*Net TCP/IP server rejected this connection request because it is in the process of stopping.

Action: Re-start SQl.*Net TCP/IP server.

ORA-6136 OSNVCH: Error During Connection Handshake

Cause: The destination server was unable to obtain enough information to complete the connection.

Action: Check that the configuration of the server is correct and that your connect string is valid. If these are correct, contact your local ABB representative responsible for this product.

ORA-6137 NETTCP: Error during connection hands

Cause: Network I/O failure occurred while communicating with the host’s SQL*Net TCI’/IP server. See the SQL*Net TCP/IP server log file for more details.

Action: Contact your local ABB representative responsible for this product.

ORA-6138 NETTCP: Error during connection hands

Cause: Network I/O failure occurred while communicating with the host’s SQL*Net TCP/IP server. See the SQL*Net TCP/IP server log file for more details.

Action: Contact your local ABB representative responsible for this product.

ORA-6140 NETTCP: No such user

Cause: A PROXY LOGIN connect attempt failed because the client username has no counterpart on the host.

Action: Contact your local ABB representative responsible for this product.

ORA-6141 NETTCP: No privilege for user

Cause: A PROXY LOGIN connect attempt failed because the SQL*Net TCI’/IP server had insufficient privileges to access the proxy account.

Action: Change account protection; change server privileges.

ORA-6142 NETTCP: Error getting user information

Cause: A PROXY LOGIN connect attempt failed because the SQL*Net TCP/IP server was unable to access the proxy account. See the SQL*Net TCP/IP server log file for more details.

Action: Contact your local ABB representative responsible for this product.

ORA-6143 NETTCP: Maximum connections exceeded

Cause: The connect failed because the maximum concurrent connections supported by the host's SQL*Net TCP/IP server has already been reached.

Action: Wait for a short period and try again.

ORA-6144 NETTCP: SID (database) is unavailable

Cause: The database administrator on the host has varied the SlD off-line.

Action: Wait for it to be varied back on-line.

ORA-6145 NETTCP: Unable to start orasrv: images not installed

Cause: The host's SQL*Net TCP/IP server was unable to start the Oracle server process because the Oracle-protected images were not installed.

Action: Install the images.

ORA-09241 Message Not Found

Cause: CONFIG or CONFIG_FILES not found.

Action: Check your AUTOEXEC.BAT files. See Section 5.4 Fault Finding and User Repair.

5.4 Fault Finding and User Repair

If you encounter problems with your SQL connection, check the following items.

1. Try the Ping utility, normally included in your TCP/IP software, to verify the TCP/IP connection. If this fails, check the following:
   a. Verify the Internet address configured for the server.
   b. Verify that the HOSTS file contains correct definition of the server name and address.
2. Oracle SQL*Net for Windows includes a Window utility called Oracle NetTest (found in the Oracle program group). This program performs a “connect” to an Oracle database. It is recommended that you run NETTEST prior to contacting support with a SQL*Net software problem. Use *ims_user* as username when connecting to an AS 500 IMS. When doing a connect, NETTEST either returns “Ping successful” or an error code, depending on connection status. The information you provide from running NETTEST helps you to solve almost all problems.
3. Run the ODBC test program found in the Oracle7 ODBC program group, one of the program groups included in the Program Manager window. Do the following:
   a. In the ORACLE Test dialog, choose the Connect button.
   b. In the SQL Data Sources dialog, select a data source name, for example MYIMS, from the list box.
   c. Select OK.
   d. Once connected to an Oracle7 Server, use the ODBC Test program to execute SQL queries and view tables.
   e. You can also use a select statement, like the one in the following example, to check that you can make a connect to the AI objects.

```
Select * from AI where name=’AITST1’
```

Before you do this, check that the object exists in the AS 500 series IMS station or in a node, connected to the station. If the connection and object exist, all object attributes for AITST1 will be returned. Refer also to the *AdvaInform User’s Guide, Basic Functions*.

5.4.1 Verifying actions

If a problem with the SQL*net software occurs after installation, check for missing or faulty program files:

- The Oracle Windows home directory, \ORAWIN, should contain the following files:
  - SQLTNS.DLL
  - SQLTNS1.DLL
  - NL.DLL
  - NS.DLL
  - NT.DLL

  If these DLL files are absent, the SQL*NET product may have been installed incorrectly. Refer to Section 2.2.1 Installing for directions on reinstallation. Refer also to Section 2.2.2 Directory structure to see the Oracle directory structure.

If a problem during run-time occurs, verify that the following files exist, and that they are properly configured:

- VSL.INI file

  Verify that the VSL.INI file is in the Windows home directory.

- AUTOEXEC.BAT file.

  Some third-party products and Version 6 tools for Windows are installed in a DOS Oracle home directory, but they must use DLL's that are found in your Windows Oracle home directory. If you are using these products, make sure that your PATH line in your AUTOEXEC.BAT file contains the following line:

```
PATH=C:\ORAWIN\BIN;<other paths>
```

  If your Windows Oracle home is not called \ORAWIN, substitute the appropriate name. Add the following line to your AUTOEXEC.BAT file:

```
SET CONFIG_FILES=C:\WINDOWS\ORACLE.INI
```

NOTE

If you are using MS-DOS 6.0, add the following line to the end of your AUTOEXEC.BAT file:

```
SET CONFIG=
```

ORACLE Server checks the CONFIG environment variable first for the path of the ORACLE configuration file. If the CONFIG variable is not set, ORACLE Server checks the CONFIG_FILES variable. Because MS-DOS 6.0 can use the CONFIG environment variable during system start-up, you must clear this variable before leaving your AUTOEXEC.BAT file. Otherwise, ORACLE Server will use its value as the path of the ORACLE configuration file.

- Verify CONFIG.SYS File

  Verify that your CONFIG.SYS file contains the appropriate settings for the BUFFERS and FILES parameters. The minimum requirements for these two parameters follow:

  ```
  BUFFERS=16
  FILES=60
  ```

  Also verify that the following command is in the CONFIG.SYS file:

  ```
  BREAK=ON
  ```

  If you modify your CONFIG.SYS or AUTOEXEC.BAT files, you must reboot your machine before continuing.

- Verify WIN.INI

  Verify that the Installer created the following lines in your WIN.INI file in your Windows home directory.

  ```
  [ORACLE]
  ORA_CONFIG=C:\WINDOWS\ORACLE.INI
  ```

- Verify TNSNAME.ORA

  Check that the client configuration file TNSNAMES.ORA is correct and updated with the latest information, see Section 3.5.2 Identifying the destination addresses

- MSOCKLIB.DLL verification

  When you install Oracle TCP/IP Protocol Adapter for Windows, the Oracle lnstaller should install the MSOCKLIB.DLL tile and several other Virtual Socket Library(VSL) files to the \ORAWIN\BIN directory. These VSL files enable the SQL*Net driver to communicate with the vendor’s TCP/IP.

  If you have more than one copy of MSOCKLIB.DLL on your PC, be sure the most recent version is in the \ORAWIN\BIN directory.

  To be sure that you are using the most recent version of MSOCKLIB.DLL, compare the creation date of this file on your Oracle TCP/IP Protocol Adapter for Windows installation disks with the values shown for MSOCKLIB.DLL in your \ORAWIN\BIN directory. To compare the file creation dates, change directories to your \ORAWIN\BIN directory, insert the Oracle TCP/IP Protocol Adapter for Windows disk in drive A:, and type:

  ```
  DIR A:\MSOCKLIB.DLL
  ```

  followed by:

  ```
  DIR MSOCKLIB.DLL
  ```

  If the version on the Oracle TCP/IP Protocol Adapter for Windows disk is more recent, type:

  ```
  COPY A:\MSOCKLIB.DLL
  ```

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